76: Yuncker N-4,5 (1953) 1959 OU9 Tonga OU9

137 [243] Sorghum (*Sorghum vulgare* Persoon var.), sweet corn (*Zea mays* Linnaeus var. *rugosa* Bonafous), and, more recently, rice (*Oryza sativa* Linnaeus) are cultivated as plantation crops.

FAMILY CYPERACEAE

Genus **Cyperus** Linnaeus

Cyperus alternifolius Linnaeus. Mantissa 1: 28. 1767.

Smooth, tufted, glabrous plant, stems stout, up to 2 m. or more tall, trigonous. Basal leaves reduced to lanceolate, acuminate sheaths, involucral leaves 10 to 20, linear, acuminate, up to 25 cm. or more long and 10 mm. wide, spreading, umbrella-like. Flowering spikelets numerous, in large, compound clusters, on slender peduncles in axils of involucral leaves.

Tongatapu: in a low, moist area near coastal road east of Nuku'alofa, Mar. 7, 1953, *Yuncker 15199*.

Infrequent. A native of Madagascar now widespread in warm countries and often cultivated as an ornamental.

Cyperus brevifolius (Rottboell) Hasskarl, Cat. Hort. Bogor. Alt., 24, 1844.

Stems slender, tufted, up to 30-50 cm. tall. Blades narrow, up to 10 cm. long and 3 mm. wide, involucral bracts similar, spreading. Flowering spikes solitary, ovoid, green, usually 5-7 mm. long, spikelets numerous, about 3 mm. long.

Tongatapu: in grassy yard near school at Nualei, Oct. 27, 1951, *Hürlimann 4*.

Occasional in plantations and grassy areas. Widespread in tropical countries.

Cyperus compressus Linnaeus. Sp. Pl., 46, 1753.

Stems erect to spreading, smooth, triangular, tufted, up to 40 cm. long. Leaves filiform, mostly somewhat shorter than stem, midrib rather prominent, sheathing stem up to 3 cm. or more at base. Spikelets up to 12 or more, in capitate, umbellate clusters, subtended by three or more leaflike bracts up to 10 cm. or more long.

Tongatapu: in low, swampy area near shore road east of Nuku'alofa, Mar. 7, 1953, *Yuncker 15209;* near shore, Sopu, west of Nuku'alofa, May 30, 1953, *Yuncker 15292, 15298*.

Lifuka: around base of trees in coconut plantation, seaward side of road north of Pangai village, May 10, 1953, *Yuncker 15799*.

Niuatoputapu: along road near coast behind Falehau, Dec. 7, 1951, *Hürlimann 394*.

Frequent as a weed throughout Tonga. Pantropic.

Tongan names: *pakopako, pakopako ano*.

Cyperus cyperinus (Retzius) Suringar, Cyperus Maleischen Archipel . . ., 154, pl. 6, fig. 10, 1898.

Stems triangular, tufted, erect, up to 60 cm. tall. Blades up to 30 cm. long and 8 mm.

243 Corn or maize - koane (Zea mays). Corn or maize, a native of Mexico (Herklots, 1972: 384), was introduced after European contact (Massal and Barrau, 1956: 44). [439] [438] Although being exported on a limited basis, it is primarily a subsistence crop as well as being sold at the local market. It is found on many bush and town allotments throughout Tongatapu, planted either alone or intercropped with yams, taro and other subsistence crops.

245 Edible hibiscus - pele (Hibiscus manihot). Pele, probably native to the Southwest Pacific (Massal and Barrau, 1956: 35) is a form of edible hibiscus, growing about three to five feet in height. [262] [252] It is an important green vegetable source (the leaves being cooked like spinach with or without coconut cream), is easily cultivated, and is commonly found throughout Tongatapu on both bush and town allotments. Two kinds, pele hina and pele kula, are commonly recognized by Tongans, the former being the more common.

Papaya or pawpaw - lesi (Carica papaya). Of tropical American origin and post-European introduction (Barrau, 1971: 5), the papaya is a ubiquitous plant which provides the most common fruit on Tongatapu. It grows on almost all bush and town allotments in both wild and cultivated states and is a dominant species in many secondary vegetation communities. There are a number of varieties recognized by Tongans, the most common being lesi Tonga, lesi meleni and lesi 'Initia.

241 Corn or koane (Zea mays) was planted alone on about
243 one-half acre (one-fifth hectare) of one allotment as a commercial crop. In the remaining 9 cases, it was intercropped with taro or giant taro, planted around the borders of yam patches, or in small mixed vegetable gardens.

241 Green onions or onioni Tonga (Allium ascalonicum) are
244 one of the most important herbs in Tongan cooking. On 3 of
[263] the 4 sample allotments where green onions were present, they were planted in well-ordered rows or homogeneous patches; in only one case were they planted amongst other subsistence crops.

241 Coffee or kofi (Coffea arabica) was found planted in
245 the shade of small groves of trees on 2 allotments and under scattered trees on another.

241 Lemon grass or moengālō (Cymbopogon citratus), the
249 leaves of which are used to brew tea, is generally found on town allotments, but was also cultivated in a small patch near a dwelling on 1 bush allotment and planted along a path through another allotment.

137 Teve (Amorphophallus campanulatus), an aroid, formerly
241 an important subsistence crop in certain areas of the Pacific (Massal and Barrau, 1956: 6), was found on only 2
[26] of the sample allotments. In both cases, it was uncultivated and, according to informants, eaten only in times of famine.

241
244 promise as an export crop, was found on 2 percent of the sample allotments, comprising 4 percent of the commercial acreage. In one instance, it was planted alone and, in another, was planted together with manioc.

241 Corn or koane (Zea mays) was found in one instance in
243 a large homogeneous stand of approximately 0.5 acres (0.2
[235] hectares). Commercial corn growing on Tongatapu seems to be increasing owing to the establishment of a chicken feed industry, which has offered to buy increasing amounts of dried corn from farmers.

241 Vanilla or vanila (Vanilla planifolia) was present on
245 only one of the sample allotments. There were approximately 40 individual plants, each supported by a physic nut tree or fiki (Jatropha curcas). These vanilla plants, like many others that have been recently planted on Tongatapu, were not yet in production.

241 Nature of Intercropping

One of the major foci of the survey of bush allotments was the nature of intercropping practices. The primary focus was on major staple and commercial crops. Supplementary crops are infrequently intercropped with major crops and are more often planted as borders on or around dwellings on bush allotments.

241 Yams ('ufi) are generally the first crop planted in a
244 recently cleared area and it is in the yam garden or ma'ala where intercropping is most prevalent. In the 53 instances